

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated February 25, 2009 has been received and its contents carefully reviewed.

Claims 1, 14, 17 and 30 are currently amended. Claim 33 is newly added. Claims 5-8, 13, 16, 21-24, 29 and 32 have been canceled without prejudice or disclaimer. No new matter is added. Claims 1-4, 9-12, 14, 15, 17-20, 25-28, 30, 31 and 33 are currently pending. Reexamination and reconsideration of the pending claims is respectfully requested.

In the Office Action, claims 1-4, 9-12, 14, 15, 17-20, 25-28, 30 and 31 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Claims 1-4, 9-12, 14, 15, 17-20, 25-28, 30 and 31 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-4, 11, 12, 14, 15, 17-20, 27, 28, 30 and 31 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,043,511 to Kim (hereinafter "Kim") in view of U.S. Publication No. 2002/0081847 to Jo et al. (hereinafter "Jo"), in view of U.S. Patent No. 5,739,877 to Onisawa et al. (hereinafter "Onisawa"), in view of U.S. Patent No. 6,674,502 to Terakado et al. (hereinafter "Terakado"), and further in view of U.S. Patent No. 5,650,834 to Nakagawa et al. (hereinafter "Nakagawa"), U.S. Patent No. 6,674,495 to Hong et al. (hereinafter "Hong"), and U.S. Patent No. 6,184,964 to Kameyama et al. (hereinafter "Kameyama"). Claims 9, 10, 25 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kim in view of Jo, in view of Onisawa, in view of Terakado, and further in view of Nakagawa, Hong and Kameyama, and further in view of U.S. Patent No. 6,091,464 to Song (hereinafter "Song").

Claims 1 and 17 have been amended, so the rejections under 35 U.S.C. § 112, first paragraph and under 35 U.S.C. § 112, second paragraph are now moot.

The rejection of claims 1-4, 11, 12, 14, 15, 17-20, 27, 28, 30 and 31 as being unpatentable over Kim in view of Jo, Onisawa, in view of Terakado, and further in view of Nakagawa, Hong and Kameyama is respectfully traversed and reconsideration is requested.

Claim 1, as amended, is allowable over the cited references in that claim 1 recites a combination of elements including, for example, "a gate electrode, a gate line and a gate pad electrode on a substrate, wherein all of the gate electrode, the gate line and the gate pad electrode have a double-layered structure including a first barrier metal layer and a first copper layer, wherein the first barrier metal layer is interposed between the substrate and the first copper layer, wherein sides of the first copper layer are inside of sides of the first barrier metal layer and wherein the first barrier metal layer and the first copper layer have a smooth taper shape without any steps on their sides; a buffer layer between the substrate and the first barrier metal layer, wherein the buffer layer is a double layer;" None of the cited references, singly or in combination, teaches or suggests at least these features of the claimed invention. Accordingly, Applicants respectfully submit that claim 1 and claims 2-4, 11, 12, 14 and 15, which depend therefrom, are allowable over the cited references.

Claim 17, as amended, is allowable over the cited references in that claim 17 recites a combination of elements including, for example, "forming a gate electrode, a gate line and a gate pad electrode on a substrate, wherein all of the gate electrode, the gate line and the gate pad electrode have a double-layered structure including a first barrier metal layer and a first copper layer, wherein the first barrier metal layer is interposed between the substrate and the first copper layer, wherein sides of the first copper layer are inside of sides of the first barrier metal layer, and wherein the first barrier metal layer and the first copper layer have a smooth taper shape without any steps on their sides; forming a buffer layer between the substrate and the first barrier metal layer, wherein the buffer layer is a double layer; ... forming a data line, source and drain electrodes and a data pad electrode, wherein the data line is on the gate insulation layer and crossed the gate line, wherein the source and drain electrodes contact the ohmic contact layer, wherein the data pad electrode is disposed on the gate insulation layer, wherein all of the data line, the source and drain electrodes, the capacitor electrode and the data pad electrode have a double-layered structure including a second barrier metal layer and a second copper layer, wherein the second barrier metal layer and the second copper layer of each of the data line, the source and drain electrodes, the capacitor electrode and the data pad electrode are simultaneously etched by a same etching solution, wherein the second barrier metal layer is interposed between the substrate and the second copper layer, wherein each of the first and second barrier metal layers includes a metallic material that has a good adhesive characteristic to the substrate and prevents a reaction between the second copper layer and both the active layer and the ohmic contact layer, and wherein the metallic material is any of

tantalum (Ta) and titanium (Ti);" None of the cited references, singly or in combination, teaches or suggests at least these features of the claimed invention. Accordingly, Applicants respectfully submit that claim 17 and claims 18-20, 27, 28, 30, 31 and 33, which depend therefrom, are allowable over the cited references.

The rejection of claims 9, 10, 25 and 26 as being unpatentable over Kim in view of Jo, in view of Onisawa, in view of Terakado, and further in view of Nakagawa, Hong and Kameyama, and further in view Song is respectfully traversed and reconsideration is requested.

Applicants respectfully submit that Song fails to cure the aforementioned defects associated with the teachings of Kim, Jo, Onisawa, Terakado, Nakagawa, Hong and Kameyama. None of the cited references, singly or in combination, teaches or suggests "a gate electrode, a gate line and a gate pad electrode on a substrate, wherein all of the gate electrode, the gate line and the gate pad electrode have a double-layered structure including a first barrier metal layer and a first copper layer, wherein the first barrier metal layer is interposed between the substrate and the first copper layer, wherein sides of the first copper layer are inside of sides of the first barrier metal layer and wherein the first barrier metal layer and the first copper layer have a smooth taper shape without any steps on their sides; a buffer layer between the substrate and the first barrier metal layer, wherein the buffer layer is a double layer" as recited in independent claim 1 and "forming a gate electrode, a gate line and a gate pad electrode on a substrate, wherein all of the gate electrode, the gate line and the gate pad electrode have a double-layered structure including a first barrier metal layer and a first copper layer, wherein the first barrier metal layer is interposed between the substrate and the first copper layer, wherein sides of the first copper layer are inside of sides of the first barrier metal layer, and wherein the first barrier metal layer and the first copper layer have a smooth taper shape without any steps on their sides; forming a buffer layer between the substrate and the first barrier metal layer, wherein the buffer layer is a double layer; ... forming a data line, source and drain electrodes and a data pad electrode, wherein the data line is on the gate insulation layer and crossed the gate line, wherein the source and drain electrodes contact the ohmic contact layer, wherein the data pad electrode is disposed on the gate insulation layer, wherein all of the data line, the source and drain electrodes, the capacitor electrode and the data pad electrode have a double-layered structure including a second barrier metal layer and a second copper layer, wherein the second barrier metal layer

and the second copper layer of each of the data line, the source and drain electrodes, the capacitor electrode and the data pad electrode are simultaneously etched by a same etching solution, wherein the second barrier metal layer is interposed between the substrate and the second copper layer, wherein each of the first and second barrier metal layers includes a metallic material that has a good adhesive characteristic to the substrate and prevents a reaction between the second copper layer and both the active layer and the ohmic contact layer, and wherein the metallic material is any of tantalum (Ta) and titanium (Ti)" of independent claim 17. For at least this reason, claims 9 and 10, which depend from claim 1, and claims 25 and 26, which depend from claim 17, are allowable over the cited references.

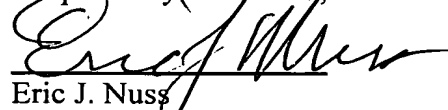
Applicants believe the application is in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

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Respectfully submitted,



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